ies NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

the condition of education 2007

INDICATOR 12

Mathematics Performance of Students in Grade 12

The indicator and corresponding tables are taken directly from *The Condition of Education 2007.* Therefore, the page numbers may not be sequential.

Additional information about the survey data and supplementary notes can be found in the full report. For a copy of *The Condition of Education 2007*, visit the NCES website (http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2007064) or contact ED PUBs at 1-877-4ED-PUBS.

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Academic Outcomes

Mathematics Performance of Students in Grade 12

On the 2005 12th-grade mathematics assessment, students in schools with lower percentages of students eligible for free or reduced-price lunch scored higher on average than those in schools with higher percentages of students eligible for this benefit.

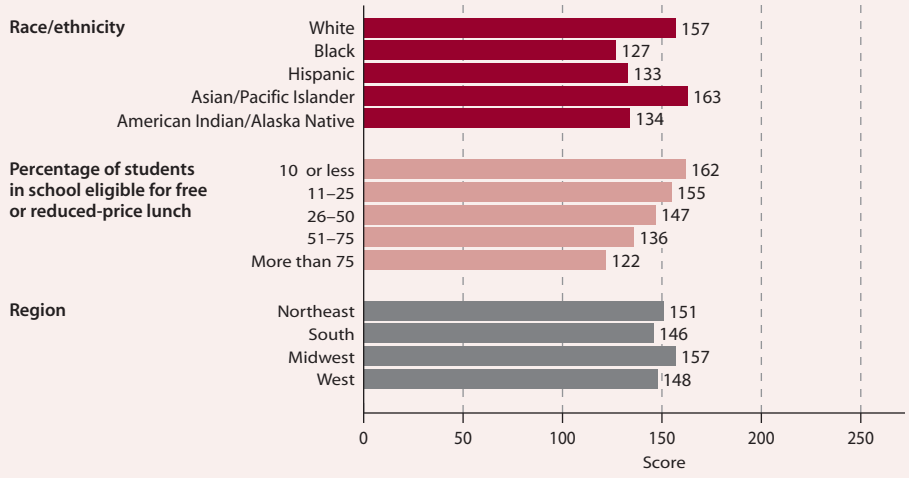
Although the National Assessment of Educational Progress (NAEP) has assessed the mathematics abilities of 12th-graders in public and private schools since 1990, in 2005, the National Assessment Governing Board revised the grade 12 mathematics framework to reflect changes in high school mathematics standards and coursework.[1] As a result, even though many questions are repeated from previous assessments, the 2005 results cannot be directly compared with those from previous years.

Reported on a 0–300 scale in 2005, the average mathematics score of 12th-graders was set at 150. Student performance varied on the assessment—scores ranged from 105 at the 10th percentile[2] to 194 at the 90th percentile (NCES 2007-468). NAEP achievement levels (*Basic*, *Proficient*, and *Advanced*) identify what students should know and be able to do at each grade. Some 23 percent of 12th-graders performed at or above *Proficient* (indicating solid academic performance) on the assessment, whereas 39 percent performed below *Basic* (indicating a level of performance below partial mastery of fundamental skills) (see supplemental table 12-1).

Examining overall scores, Asian/Pacific Islander students scored higher on average in 2005 than students in the other four racial/ethnic groups. The average score for White students was higher than the average scores for Black, Hispanic, and American Indian students; Hispanic students scored higher on average than Black students. The same patterns were evident for scores within the four content areas—numbers and operations, measurement and geometry, data analysis and probability, and algebra—with the following exceptions (see supplemental table 12-2): scores for Asian/Pacific Islander students and White students were not significantly different in the number properties and operations and the data analysis and probability content areas. Also, American Indian students scored higher on average than Black students in measurement and geometry.

Differences in overall scores were also observed by school poverty and region. Students attending schools with lower percentages of students eligible for free or reduced-price lunch scored higher than students in schools with higher percentages of eligible students. Students in the Midwest outperformed their peers in the West, South, and Northeast.

MATHEMATICS PERFORMANCE: Average mathematics scores of 12th-grade students, by race/ethnicity, percentage of students eligible for free or reduced-price lunch, and region: 2005



[1] Among other changes, the framework was revised by merging the measurement and geometry content areas into one and by adding additional questions on algebra, data analysis, and probability.

[2] A score location at or below which a specified percentage of the population falls. For example, in 2005, the 10th percentile of 12th-grade mathematics scores was 105. This means that 10 percent of 12th-graders had NAEP mathematics scores at or below 105, while 90 percent scored above 105.

NOTE: See *supplemental note 4* for more information on NAEP. Race categories exclude persons of Hispanic ethnicity.

SOURCE: Grigg, W., Donahue, P., and Dion, G. (2007). *The Nation's Report Card: 12th-Grade Reading and Mathematics 2005* (NCES 2007-468), data from U.S. Department of Education, National Center for Education Statistics, NAEP Data Explorer.

FOR MORE INFORMATION:

Supplemental Note 4

Supplemental Tables 12-1, 12-2

Mathematics Performance of Students in 12 Grade

Table 12-1. Percentage of 12th-grade students at each achievement level, by student and school characteristics: 2005

Student or school characteristic	Below *Basic*	At or above *Basic*[1]	At or above *Proficient*[1]	At *Advanced*[1]
Total	**39**	**61**	**23**	**2**
Sex				
Male	38	62	25	3
Female	40	60	21	1
Race/ethnicity[2]				
White	30	70	29	3
Black	70	30	6	#
Hispanic	60	40	8	#
Asian/Pacific Islander	27	73	36	6
American Indian/Alaska Native	58	42	6!	1!
Parents' education				
Did not finish high school	65	35	7	#
Graduated from high school	54	46	12	#
Some education after high school	41	59	18	1
Graduated from college	26	74	34	4
How often student discusses studies at home				
Every day	40	60	25	3
1–3 times a week	31	69	28	2
1–2 times a month	44	56	19	2
Never/hardly ever	48	52	17	2
Number of books in the home				
0–10	69	31	5	#
11–25	56	44	10	#
26–100	38	62	21	2
More than 100	24	76	36	4
Region				
West	41	59	22	3
Midwest	31	69	28	3
South	45	55	19	2
Northeast	37	63	24	2
Location				
Central large city	51	49	16	2
Central mid-sized city	39	61	24	3
Urban fringe/large town	36	64	27	3
Rural/small town	40	60	19	1
Students in school eligible for free or reduced-price lunch				
10 percent or less	25	75	37	4
11–25 percent	32	68	27	3
26–50 percent	43	57	19	2
51–75 percent	57	43	8	1!
More than 75 percent	75	25	4	#

Rounds to zero.

! Interpret data with caution (estimates are unstable).

[1] Included in the at or above *Proficient* achievement level is the at *Advanced* achievement level; included in the at or above *Basic* achievement level is the at or above *Proficient* achievement level.

[2] Race categories exclude persons of Hispanic ethnicity.

NOTE: The 2005 National Assessment of Educational Progress (NAEP) introduced a new mathematics assessment for 12th-grade students. As a result, the 2005 12th-grade assessment results cannot be compared with those from previous assessments. See *supplemental note 4* for more information on NAEP.

SOURCE: Grigg, W., Donahue, P., and Dion, G. (2007). *The Nation's Report Card: 12th-Grade Reading and Mathematics 2005* (NCES 2007-468), data from U.S. Department of Education, National Center for Education Statistics, NAEP Data Explorer.

Mathematics Performance of Students in 12 Grade

Table 12-2. Average mathematics scores of 12th-grade students, by content area and student and school characteristics: 2005

Student or school characteristic	Overall	Content Area			
		Numbers and operations	Measurement and geometry	Data analysis and probability	Algebra
Total	**150**	**150**	**150**	**150**	**150**
Sex					
Male	151	152	152	151	151
Female	149	148	148	149	150
Race/ethnicity[1]					
White	157	158	158	158	157
Black	127	126	124	126	130
Hispanic	133	132	134	132	134
Asian/Pacific Islander	163	160	163	157	167
American Indian/Alaska Native	134	132	141	134	129
Parents' education					
Did not finish high school	130	130	130	131	130
Graduated from high school	138	137	138	139	137
Some education after high school	148	149	148	148	148
Graduated from college	161	162	162	161	161
How often student discusses studies at home					
Every day	150	149	150	150	151
1–3 times a week	156	156	156	156	156
1–2 times a month	146	147	146	147	146
Never/hardly ever	144	144	144	144	143
Number of books in the home					
0–10	126	126	127	126	126
11–25	136	137	135	135	137
26–100	151	150	151	151	150
More than 100	163	163	163	163	163
Region					
West	148	147	149	148	149
Midwest	157	158	157	157	156
South	146	146	146	146	146
Northeast	151	152	151	151	151
Students in school eligible for free or reduced-price lunch					
10 percent or less	162	162	163	163	162
11–25 percent	155	154	155	155	156
26–50 percent	147	148	147	147	146
51–75 percent	136	135	134	136	136
More than 75 percent	122	121	122	121	123

[1] Race categories exclude persons of Hispanic ethnicity.

NOTE: The 2005 National Assessment of Educational Progress (NAEP) introduced a new mathematics assessment for 12th-grade students. As a result, the 2005 12th-grade assessment results cannot be compared with those from previous assessments. Reported on a 0–300 scale in 2005, the average mathematics score of 12th-graders was set at 150. See *supplemental note 4* for more information on NAEP.

SOURCE: Grigg, W., Donahue, P., and Dion, G. (2007). *The Nation's Report Card: 12th-Grade Reading and Mathematics 2005* (NCES 2007-468), data from U.S. Department of Education, National Center for Education Statistics, NAEP Data Explorer.

Mathematics Performance of Students in 12 Grade

Table S12-1. Standard errors for the percentage of 12th-grade students at each achievement level, by student and school characteristics: 2005

Student or school characteristic	Below *Basic*	At or above *Basic*	At or above *Proficient*	At *Advanced*
Total	**0.8**	**0.8**	**0.7**	**0.2**
Sex				
Male	0.9	0.9	1.0	0.4
Female	1.0	1.0	0.8	0.4
Race/ethnicity				
White	0.8	0.8	0.8	0.3
Black	1.7	1.7	0.8	†
Hispanic	2.1	2.1	1.0	†
Asian/Pacific Islander	2.6	2.6	3.0	1.2
American Indian/Alaska Native	8.6	8.6	2.9	0.6
Parents' education				
Did not finish high school	2.4	2.4	1.2	†
Graduated from high school	1.3	1.3	1.2	†
Some education after high school	1.3	1.3	1.0	0.3
Graduated from college	0.9	0.9	1.0	0.5
How often student discusses studies at home				
Every day	1.5	1.5	1.4	0.5
1–3 times a week	1.0	1.0	1.1	0.4
1–2 times a month	1.6	1.6	1.3	0.4
Never/hardly ever	1.9	1.9	1.1	0.6
Number of books in the home				
0–10	1.6	1.6	0.9	†
11–25	1.6	1.6	1.1	†
26–100	1.3	1.3	1.0	0.3
More than 100	1.0	1.0	1.0	0.5
Region				
West	1.9	1.9	1.5	0.6
Midwest	1.2	1.2	1.6	0.5
South	1.3	1.3	1.0	0.3
Northeast	1.9	1.9	2.0	0.5
Location				
Central large city	2.5	2.5	1.6	0.6
Central mid-sized city	2.1	2.1	1.9	0.8
Urban fringe/large town	1.1	1.1	1.1	0.4
Rural/small town	1.4	1.4	1.2	0.2
Students in school eligible for free or reduced-price lunch				
10 percent or less	2.4	2.4	2.5	1.1
11–25 percent	1.8	1.8	1.7	0.4
26–50 percent	1.5	1.5	1.1	0.3
51–75 percent	2.4	2.4	1.1	0.3
More than 75 percent	3.0	3.0	1.1	†

† Not applicable.

SOURCE: Grigg, W., Donahue, P., and Dion, G. (2007). *The Nation's Report Card: 12th-Grade Reading and Mathematics 2005* (NCES 2007-468), data from U.S. Department of Education, National Center for Education Statistics, NAEP Data Explorer.

Mathematics Performance of Students in 12 Grade

Table S12-2. Standard errors for the average mathematics scores of 12th-grade students, by content area and student and school characteristics: 2005

Student or school characteristic	Overall	Content Area			
		Numbers and operations	Measurement and geometry	Data analysis and probability	Algebra
Total	**0.6**	**0.8**	**0.6**	**0.6**	**0.6**
Sex					
Male	0.7	1.0	0.8	0.9	0.8
Female	0.7	0.8	0.7	0.7	0.7
Race/ethnicity					
White	0.6	0.9	0.6	0.6	0.6
Black	1.1	1.6	1.1	1.2	1.5
Hispanic	1.3	1.5	1.5	1.4	1.3
Asian/Pacific Islander	2.0	2.2	2.3	2.5	2.4
American Indian/Alaska Native	4.1	5.4	4.6	7.6	4.0
Parents' education					
Did not finish high school	1.5	1.5	1.5	2.5	1.4
Graduated from high school	1.1	1.2	1.3	1.1	1.2
Some education after high school	0.8	1.1	0.8	1.0	1.0
Graduated from college	0.6	1.0	0.6	0.8	0.7
How often student discusses studies at home					
Every day	1.0	1.7	1.1	1.1	1.1
1–3 times a week	0.8	0.9	0.9	1.0	0.9
1–2 times a month	1.1	1.3	1.1	1.3	1.1
Never/hardly ever	0.9	1.0	1.0	1.1	1.0
Number of books in the home					
0–10	0.9	1.1	1.1	1.1	0.9
11–25	1.0	1.1	1.1	1.1	1.2
26–100	0.8	1.1	0.8	0.9	0.9
More than 100	0.7	1.0	0.8	0.9	0.8
Region					
West	1.6	1.7	1.6	1.7	1.8
Midwest	0.8	1.2	1.0	1.0	0.9
South	0.8	1.3	0.9	1.0	0.9
Northeast	1.6	1.7	1.8	1.6	1.6
Students in school eligible for free or reduced-price lunch					
10 percent or less	2.0	2.0	2.0	2.3	2.2
11–25 percent	1.4	1.4	1.4	1.5	1.5
26–50 percent	1.0	1.3	1.1	1.2	0.9
51–75 percent	1.3	1.8	1.5	1.4	1.6
More than 75 percent	2.4	2.4	2.9	2.7	2.4

SOURCE: Grigg, W., Donahue, P., and Dion, G. (2007). *The Nation's Report Card: 12th-Grade Reading and Mathematics 2005* (NCES 2007-468), data from U.S. Department of Education, National Center for Education Statistics, NAEP Data Explorer.